Rec'a POT/PTO 19 JAN 2005

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization

International Bureau



(43) International Publication Date29 January 2004 (29.01.2004)

PCT

(10) International Publication Number WO 2004/00992 A1

(51) International Patent Classification7:

F03C 2/00

(21) International Application Number:

PCT/US2003/022680

(22) International Filing Date:

21 July 2003 (21.07.2003)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data: 60/397,212

19 July 2002 (19.07.2002) US

- (71) Applicant (for all designated States except US): ARGO-TECH CORPORATION [US/US]; 23555 Euclid Avenue, Cleveland, Oh 44117 (US).
- (72) Inventors; and
- (75) Inventors/Applicants (for US only): CLEMENTS, Martin, A. [US/US]; 6581 Devonshire Drive, North Royalton, OH 44133 (US). NYZEN, Robert [US/US]; 11595 Twin Mills Lane, Chardon, OH 44024 (US).
- (74) Agent: NAUMAN, Timothy, E.; Fay, Sharpe, Fagan, Minnich & McKee LLP, 1100 Superior Avenue, 7th Floor, Cleveland, OH 44114 (US).

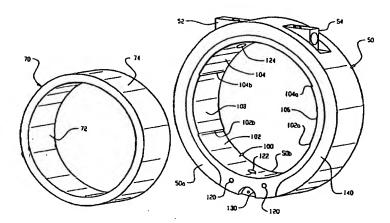
- (81) Designated States (national): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.
- (84) Designated States (regional): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

- with international search report
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: CAM RING BEARING FOR FUEL DELIVERY SYSTEM



(57) Abstract: A bearing assembly is provided for a fuel delivery system that includes a pump (10) having a housing that rotatably receives a rotor (20) carrying vanes (26) thereon, a cam ring (70) received between the housing and rotor (20), and a support member of yoke (50) encompassing the cam ring (70) to selectively vary fuel flow. The bearing assembly (80) is a journal bearing between the yoke (50) and the cam ring (70) and includes an annular surface having a central opening therethrough. The annular surface includes a first, high pressure pad (102) and a second, low pressure pad (104) substantially diametrically opposite the first pad and separated by first and second lands (106, 108). The circumferential extent of the first pad (102) is at least as great as an inner diameter of the cam ring (70). Circumferential ends of the second pad (104) are wider than circumferential ends of the first pad. The first and second pads (102, 104) are formed by circumferentially extending grooves that extend an entire width of the bearing so that the cam ring moves between the first and second pads, and thereby varies a clearance between the lands (106, 108) and the cam ring (70).